# AUTOMATIC DEM GENERATION USING MAGELLAN RADAR STEREO DATA

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Subsequent to its insertion into Venus orbit in Aug ust of 1 990 the Magellan spacecraft collected synthetic aperture radar (SAR) data over 98% of the planet's surface. Because Venus' spin rate is very small, completing one rotation in every 243 days (one cycle), Magellan was able to image a large portion of the planet's surface during, each of its three mapping cycle.s. During the third cycle the look angle was adjusted in order to obtain stereo pairs with data collected during the. first cycle. Stereo data was collected over approximately 35% of Venus' surface. In order to expolit this data set an automated procedure for making digital elevation models (DEM) from the stereo data is required. Stereo processing consists of three primary functions, scene correlation or matching, solving for scatterer position vectors using the matching data (stereo intersection), and regridding the. position vectors to a uniform map grid. in this paper we present algorithms for the stereo intersection and regridding funct ions which arc applicable to the unique aspects of the Magellan stereo data.

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